ATEX Manual

Rotary pumps

in a Hazardous Environment (Acc. to 94/9/EC)

JEC LTD.

15-26 , Beodeul-ro, Paltan-myun, Hwaseong-si, Gyeonggi-do, South Korea
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Contents

ATEX Certificate

JEC PUMPS

Konformitätserklärung
EC declaration of conformity

im Sinne der EG-Maschinenrichtlinie 98 / 37 / EG, Anhang IIA
as defined by EC machinery directive 98 / 37 / EC, Annex II A

Produkt: Product:	Kreiskolbenpumpe Rotary Lobe Pump
Modell: Serial No :	**JRZL series** JECP-0000
Max. Arbeitsdruck: max. working pressure:	**bis 12 bar** **to 12 bar**
Drehzahl: Speed:	**<500 min^{-1} (+/-10%)** **Ex II 2G c T4**
Kennzeichnung: Marking:	

Hiermit erklären wir, dass die Pumpentypen, mit den folgenden Richtlinien übereinstimmen:
We declares that the pump types, complies with the following relevant regulations:

EG - Maschinenrichtlinie 98 / 37 / EG, Anhang I Nr.1
EC machinery directive 98 / 37 / EG, Annex I No. 1

EG - Richtlinie 94 / 9 / EC für Geräte in explosionsgefährdeten Bereichen
EC directive 94 / 9 / EC for equipment for the use in potentially explosive atmospheres

Entsprechend Artikel 8(1)b)ii) der Richtlinie 94/9/EG ist die technische Dokumentation bei der benannten Stelle hinterlegt:
IBExU, Institut für Sicherheitstechnik, Fuchsmühlenweg 7, 09599 Freiberg

According to article 8(1)b)ii) of guide line 94 / 9 / EC the technical documentation is deposited at the nominated location:
IBExU, Institute for Safety Technology, Fuchsmuehlenweg 7, 09599 Freiberg, Germany

Angewandte harmonisierte Normen:
Applicable harmonized standards:

EN 292-1, EN 292-2, EN 809, EN 294, EN 563, EN 953

EN1127-1, EN 13463-1, EN 13463-5

Die Sicherheitshinweise der Betriebsanleitung sind zu beachten!
The safety instructions of the operating manual must be followed!

July 28 2009
Date

James Song / President

JEC LTD. 32-8, Hwadang-ri, Paltan-myun, Hwaseong-si, Gyeonggi
Tel : 82-31-355-0316, Fax : 82-31-355-0319

EC-Declaration of conformity

(as per EC's Machinery Directive 2006/42/EC, Annex IIA)

Producer
JEC LTD
15-26, Beodeul-ro 1362, Hwasung-Shi,
Kyunggi-do, South Korea

We hereby guarantee that **Rotary lobe pumps (Pump Head Only)**
Type: **JRZL series**

are in conformity with the essential requirements of the EC's Machinery Directive 2006/42/CE(latest modifications included) and according the following Council Directives and harmonized norms:

- **2006/95/EC Directive "low voltage"**
- **UNI EN ISO 12100-2:2005**

Manufacturer Declaration

(as per EC's Machinery Directive 2006/42/CE, Annex IIB)

We hereby declares that the above pumps,
Comply with the pertinent disposition, in the execution supplied by JEC LTD for the incorporation in a machine or installation, or for the assembly with other machines as a subunit of other higher order machine. Harmonized norms used, particularly:

UNI EN ISO 12100-2:2005

The machine above must not be put into service until the machinery into which it has been incorporated have been declared in conformity with the EC Machinery Directive. It must meet, particularly, the standards ISO 23857:2008, ISO 13732-1:2007 in its respective current editions.

James Song / President

JEC LTD. 15-26 , Beodeul-ro, Paltan-myun, Hwaseong-si, Gyeonggi-do, 445-843, South Korea
Tel : 82-31-355-0316, Fax : 82-31-355-0319

ATEX Certificate

JEC PUMPS

Konformitätserklärung
EC declaration of conformity

im Sinne der EG-Maschinenrichtlinie 98 / 37 / EG, Anhang IIA
as defined by EC machinery directive 98 / 37 / EC, Annex II A

Produkt: Product:	Kreiskolbenpumpe Rotary Lobe Pump
Modell: Serial No :	**JRZP series** JECP-0000
Max. Arbeitsdruck: max. working pressure:	**bis 15 bar** **to 15 bar**
Drehzahl: Speed:	**<500 min^{-1} (+/-10%)**
Kennzeichnung: Marking:	**Ex II 2G c T4**

Hiermit erklären wir, dass die Pumpentypen, mit den folgenden Richtlinien übereinstimmen:
We declares that the pump types, complies with the following relevant regulations:

EG - Maschinenrichtlinie 98 / 37 / EG, Anhang I Nr.1
EC machinery directive 98 / 37 / EG, Annex I No. 1

EG - Richtlinie 94 / 9 / EC für Geräte in explosionsgefährdeten Bereichen
EC directive 94 / 9 / EC for equipment for the use in potentially explosive atmospheres

Entsprechend Artikel 8(1)b)ii) der Richtlinie 94/9/EG ist die technische Dokumentation bei der benannten Stelle hinterlegt:
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Angewandte harmonisierte Normen:
Applicable harmonized standards:

EN 292-1, EN 292-2, EN 809, EN 294, EN 563, EN 953

EN1127-1, EN 13463-1, EN 13463-5

Die Sicherheitshinweise der Betriebsanleitung sind zu beachten!
The safety instructions of the operating manual must be followed!

July 28 2009
Date

James Song / President

JEC LTD. 32-8, Hwadang-ri, Paltan-myun, Hwaseong-si, Gyeonggi
Tel : 82-31-355-0316, Fax : 82-31-355-0319

EC-Declaration of conformity

(as per EC's Machinery Directive 2006/42/EC, Annex IIA)

Producer
JEC LTD
15-26, Beodeul-ro 1362, Hwasung-Shi,
Kyunggi-do, South Korea

We hereby guarantee that **Circumferential piston pump (Pump Head Only)**
Type: **JRZP series**

are in conformity with the essential requirements of the EC's Machinery Directive 2006/42/CE(latest modifications included) and according the following Council Directives and harmonized norms:

- **2006/95/EC Directive "low voltage"**
- **UNI EN ISO 12100-2:2005**

Manufacturer Declaration

(as per EC's Machinery Directive 2006/42/CE, Annex IIB)

We hereby declares that the above pumps,
Comply with the pertinent disposition, in the execution supplied by JEC LTD for the incorporation in a machine or installation, or for the assembly with other machines as a subunit of other higher order machine. Harmonized norms used, particularly:

UNI EN ISO 12100-2:2005

The machine above must not be put into service until the machinery into which it has been incorporated have been declared in conformity with the EC Machinery Directive. It must meet, particularly, the standards ISO 23857:2008, ISO 13732-1:2007 in its respective current editions.

James Song / President

JEC LTD. 15-26 , Beodeul-ro, Paltan-myun, Hwaseong-si, Gyeonggi-do, 445-843, South Korea
Tel : 82-31-355-0316, Fax : 82-31-355-0319

Introduction

Preliminary Information

Applications in sites with potentially explosive atmosphere require particular attention concerning installation, operation, maintenance and supervision. The main information about the pumps is contained in the general manual.

All safety regulations, standards and procedures must be followed to avoid personal injury, damage to the equipment and environmental contamination. Personnel involved with the installation, start-up, operation, maintenance or service must review and follow these instructions.

Our warranty does not apply to any device which has been subject to improper use and negligence.

Validity

This document refers to JEC rotary pumps. The serial number is indicated on the label.

Safety Notes

The operating range should never be exceeded. See specification for limits.

Provisional repair and improper spare parts are inconsistent with the ATEX regulations. To maintain the explosion protection, the use of original JEC spare parts is mandatory.

Tubes and protective devices should not be impaired, bended etc. (never climb onto any component).

All other components connected to the pump (driving elements, couplings, valves, fittings, measuring instruments etc.) must meet at least the same safety requirements acc. to 94/9/EC.

Symbols

An operating procedure, which, if not strictly observed, can result in personal injury or environmental contamination

A procedure, essential to avoid damage to the equipment.

Important information that should not be overlooked, otherwise the functionality of the pump is reduced.

ATEX Certificates and Pump Markings

II 2 G c T4

Marking and JEC certificate are valid only for pump resp. pump head, not for the motor! The pump complies with the requirements of the Council Directive 94/9/EC, in a hazardous atmosphere (group II), consisting in a mixture of gas and air (G). The safety category is 2, and the temperature class T4. This determines an upper limit of 135°C for the delivered liquid.

The motor requires its own declaration of conformity, issued by the corresponding manufacturer. The temperatures resulting from the pump operation should not be in excess of the admissible values at the motor shaft and the motor flange, otherwise the safety cannot be guaranteed. In case of doubt, consult the manufacturer.

For motors with flameproof enclosure Eexde II CT4: Frequency 5 to 87Hz

Personnel

The installation, operation and maintenance of the pump must be in accordance with all of the user and local regulatory standards and procedures. Refer installation to qualified and trained personnel with an adequate knowledge about safety measures in a potentially explosive atmosphere.

Unauthorized Modifications

Unauthorized modifications, changes of design etc. are strictly forbidden. Negligence during the installation work should be avoided. Consequential damages are not covered by the warranty.

Installation and Start-Up

Location and Surroundings

Mount the pump in a suitable, accessible location. To protect the motor from overheating, provide sufficient room for ventilation. A minimum clearance to adjacent parts and walls should be maintained.

A further potential danger source are distorted tubes. As the pump tolerances are quite narrow, a tube spoiled by bending may introduce friction to the system, entailing the generation of inadmissible heat.

RPM max. <500 min^{-1} (+/- 10%)

Electrical Connections

All electrical connections must be made according to local wiring regulations and electrical code. These tasks are reserved to a qualified electrician. Maximum power values, issued by the motor manufacturer, must be observed. A protective motor switch is strongly recommended.

If during the installation procedure the explosive atmosphere is already present, **never** verify the direction of rotation by switching off and restarting the dry pump. A temperature rise with frictional heat at the mechanical seals may cause an explosion hazard.

Grounding

Between pump and base plate or foundation, a potential equalization line must be provided.

Filling Procedure

During operation, the inside is usually completely filled, so an explosive atmosphere is absent. By this reason, filling/De-aerating the pump and the suction line before starting-up is mandatory.

A dry run can be dangerous, particularly in the zone of the rotating mechanical seal.

If the formation of gas bubbles and pockets in the area of the mechanical seal cannot be excluded during operation, special monitoring methods must be applied. For a vertically mounted pump, this is always the case.

One more time: Dry running is dangerous and could result in serious injury or death, or damage to the equipment!

Operation and Maintenance

Operation

It is obvious, that a safe operation in a hazardous location is only possible with a careful respect of the specification – or there will be the risk of an uncontrollable temperature rise. It is also forbidden to lock the suction line for a longer time, because this will create friction energy and an accumulation of heat.

When working with a locked pressure line, pump or tubes may burst.
During starting-up, the suction valve should be totally opened, and the valve of the pressure side partially. Thus the operating range of the pump will be observed.

The maximum surface temperature has to be controlled weekly. If the values listed below are exceeded, the pump has to be set out of action at once.

Admissible Temperatures

Class	Temperature
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

Admissible temperatures for transported liquid and pump surface, depending on the ATEX temperature class.

Maintenance and Service

To reduce the occurrence of problems with the pump, the preventive maintenance schedule must be followed, otherwise a safe operation in a hazardous location is not guaranteed.

This is particularly important for wearing parts like mechanical seals, O-rings and bearings. A regular visual inspection of static seals is mandatory.

Personnel should be sufficiently qualified and thoroughly familiar with the operation of the pump, before starting any maintenance procedure. The same holds for inspection and cleaning in the case of a possible dismantling and reassembling of the pump. During this kind of work, an explosive atmosphere should not be present.

Inspection and Maintenance Intervals:

Daily:
Oil level in the pump gearing, visual leakage control

Monthly / after 720 hours:
Oil level (viewing lass at the side of the gear case)

Yearly:
During the exchange of the mechanical seal, inspect and, if necessary, replace the rolling bearing. O-rings and rotary seals sometimes have to be exchanged as well.

Dismantling / Re-assembly

Follow the steps listed in the general manual. Gap distances between rotating and static parts are crucial, otherwise dangerous friction phenomena are possible. The same holds for screw torques. Loose parts cannot be tolerated.

Another important parameter, by the reason mentioned above, is the correct distance between rotating parts and covers.

ATEX Manual

Centrifugal pumps

in a Hazardous Environment (Acc. to 94/9/EC)

JEC LTD.

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ATEX Certificate

JEC PUMPS

Konformitätserklärung
EC declaration of conformity

im Sinne der EG-Maschinenrichtlinie 98 / 37 / EG, Anhang IIA
as defined by EC machinery directive 98 / 37 / EC, Annex II A

Produkt: Product:	Zentrifugal pumpe Centrifugal pump
Modell: Serial No :	**JP, JCP, JSP, JSB, JEP and JEPS** JECP-0000
Max. Arbeitsdruck: max. working pressure:	**bis 10 bar** **to 10 bar**
Drehzahl: Speed:	**<3600 min^{-1} (+/-10%)**
Kennzeichnung: Marking:	**Ex II 2G c T4**

Hiermit erklären wir, dass die Pumpentypen, mit den folgenden Richtlinien übereinstimmen:
We declares that the pump types, complies with the following relevant regulations:

EG - Maschinenrichtlinie 98 / 37 / EG, Anhang I Nr.1
EC machinery directive 98 / 37 / EG, Annex I No. 1

EG - Richtlinie 94 / 9 / EC für Geräte in explosionsgefährdeten Bereichen
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Applicable harmonized standards:

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EN1127-1, EN 13463-1, EN 13463-5

Die Sicherheitshinweise der Betriebsanleitung sind zu beachten!
The safety instructions of the operating manual must be followed!

July 28 2009
Date

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JEC LTD. 32-8, Hwadang-ri, Paltan-myun, Hwaseong-si, Gyeonggi
Tel : 82-31-355-0316, Fax : 82-31-355-0319

EC-Declaration of conformity

(as per EC's Machinery Directive 2006/42/EC, Annex IIA)

Producer
JEC LTD
15-26, Beodeul-ro 1362, Hwasung-Shi,
Kyunggi-do, South Korea

We hereby guarantee that **Centrifugal pumps (Pump Head Only)**
Type: **JP, JCP, JSP, JSB, JEP and JEPS series**

are in conformity with the essential requirements of the EC's Machinery Directive 2006/42/CE(latest modifications included) and according the following Council Directives and harmonized norms:

- **2006/95/EC Directive "low voltage"**
- **UNI EN ISO 12100-2:2005**

Manufacturer Declaration

(as per EC's Machinery Directive 2006/42/CE, Annex IIB)

We hereby declares that the above pumps,
Comply with the pertinent disposition, in the execution supplied by JEC LTD for the incorporation in a machine or installation, or for the assembly with other machines as a subunit of other higher order machine. Harmonized norms used, particularly:

UNI EN ISO 12100-2:2005

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James Song / President

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All safety regulations, standards and procedures must be followed to avoid personal injury, damage to the equipment and environmental contamination. Personnel involved with the installation, start-up, operation, maintenance or service must review and follow these instructions.

Our warranty does not apply to any device which has been subject to improper use and negligence.

Validity

This document refers to JEC centrifugal pumps. The serial number is indicated on the label.

Safety Notes

The operating range should never be exceeded. See specification for limits.

Provisional repair and improper spare parts are inconsistent with the ATEX regulations. To maintain the explosion protection, the use of original JEC spare parts is mandatory.

Tubes and protective devices should not be impaired, bended etc. (never climb onto any component).

All other components connected to the pump (driving elements, couplings, valves, fittings, measuring instruments etc.) must meet at least the same safety requirements acc. to 94/9/EC.

Symbols

An operating procedure, which, if not strictly observed, can result in personal injury or environmental contamination

A procedure, essential to avoid damage to the equipment.

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For motors with flameproof enclosure Eexde II CT4: Frequency 5 to 87Hz

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Installation and Start-Up

Location and Surroundings

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A further potential danger source are distorted tubes. As the pump tolerances are quite narrow, a tube spoiled by bending may introduce friction to the system, entailing the generation of inadmissible heat.

RPM max. <3600 min^{-1} (+/- 10%)

Electrical Connections

All electrical connections must be made according to local wiring regulations and electrical code. These tasks are reserved to a qualified electrician. Maximum power values, issued by the motor manufacturer, must be observed. A protective motor switch is strongly recommended.

If during the installation procedure the explosive atmosphere is already present, **never** verify the direction of rotation by switching off and restarting the dry pump. A temperature rise with frictional heat at the mechanical seals may cause an explosion hazard.

Grounding

Between pump head, legs and motor shroud, a potential equalization line must be provided.

Filling Procedure

During operation, the inside is usually completely filled, so an explosive atmosphere is absent. By this reason, filling/De-aerating the pump and the suction line before starting-up is mandatory.

A dry run can be dangerous, particularly in the zone of the rotating mechanical seal.

If the formation of gas bubbles and pockets in the area of the mechanical seal cannot be excluded during operation, special monitoring methods must be applied.

One more time: Dry running is dangerous and could result in serious injury or death, or damage to the equipment!

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Admissible temperatures for transported liquid and pump surface, depending on the ATEX temperature class.

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This is particularly important for wearing parts like mechanical seals, O-rings and bearings. A regular visual inspection of static seals is mandatory.

Personnel should be sufficiently qualified and thoroughly familiar with the operation of the pump, before starting any maintenance procedure. The same holds for inspection and cleaning in the case of a possible dismantling and reassembling of the pump. During this kind of work, an explosive atmosphere should not be present.

Inspection and Maintenance Intervals:

Daily:
Visual leakage control

Monthly / after 720 hours:
Leakage, operation, vibration and heat check

Yearly:
O-rings and mechanical seal has to be replaced along with pump inspection. Genuine replacement parts are required and please refer operational manual.

Dismantling / Re-assembly

Follow the steps listed in the general manual. Gap distances between rotating and static parts are crucial, otherwise dangerous friction phenomena are possible. The same holds for screw torques. Loose parts cannot be tolerated.

Another important parameter, by the reason mentioned above, is the correct distance between rotating parts and covers.